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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

SUNAGAWA, Takenobu et al.

Serial No.: 09/926,085

Filed: August 27, 2001

Group Art Unit: 1713

Examiner: Tatyana ZALUKAEVA

P.T.O. Confirmation No.: 2186

For: PROCESSING AID FOR THERMOPLASTIC RESIN AND THERMOPLASTIC RESIN COMPOSITION CONTAINING THE SAME

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: October 24, 2003

Sir:

Reconsideration of the rejections contained in the Office Action dated July 24, 2003, in view of the following detailed comments is respectfully requested.

In the Office Action, claims 9 and 10 were rejected under 35 USC § 102(b) as being anticipated by the previously applied patent to Hoebeke. In making this rejection, it was asserted that the cited patent teaches a composition having the recited molecular weight which is obtained from polymerizing (1) methyl methacrylate and (4) a (meth)acrylate having an oxygen atom in addition to an ester bond in the presence of (3) a mercaptan as a chain transfer agent. Reconsideration of this rejection in view of the following comments is respectfully requested.

As a brief review, claim 9 relates to a processing aid obtained by using, as a chain transfer agent, a mercaptan having an alkylester group. Such mercaptans having an alkylester group refer to compounds such as tertiary-butyl thioglycolate and 2-ethylhexyl thioglycolate as described on page 6, lines 23 to 25 of the subject specification. As is apparent from a consideration of Examples 8, 23 to 26 and Comparative Examples 7 to 10, a thermoplastic resin composition containing a processing aid obtained using mercaptan having an alkylester group are excellent in peeling properties from a metal surface at a high temperature. It is submitted that such a processing aid formed with a mercaptan having an alkyl ester group as a chain transfer agent is not taught or suggested by the cited patent to Hoebeke.

More particularly, the Hoebeke patent only teaches the use of n-dodecylmercaptan, t-docanethiol and isooctylmercaptan. It is submitted that none of these compounds are a mercaptan having an alkyl ester group with C_{4-40} alkyl group as claimed. Specifically, these compounds such as n-dodecyl mercaptan as disclosed in the Hoebeke patent do not have an ester group. Thus, the subject matter of claim 9 differs from that disclosed in the Hoebeke patent at least in terms that the mercaptan as claimed has an alkylester group.

As was mentioned above, a thermoplastic resin composition containing the processing aid obtained by polymerizing mixture comprising a (meth)acrylate having

feature of the claimed processing aid as defined by claim 1 is that the aid is obtained by polymerizing a mixture containing a (meth)acrylate having an oxygen atom in addition to an ester bond in the presence of an organic peroxide having a tertiary-butyl peroxy group as a polymerization initiator. It has been found that only when this particular combination is polymerized, that is, the combination of (1) the (meth)acrylate having an oxygen atom in addition to an ester bond and (2) the polymerization initiator of an organic peroxide having a tertiary-butyl peroxy group, that a processing aid, when incorporated into a thermoplastic resin composition, has an excellent peeling property from a metal surface at a high temperature. It is submitted that such a processing aid for a thermoplastic resin is not taught or suggested by the cited patent to Tugukuni et al.

More particularly, the Tugukuni et al patent apparently teaches the use of "benzoyl peroxide" as an organic peroxide (Examples 1, 4 and 5) and an organic peroxide having a t-butyl peroxy group is also mentioned. However, it is submitted that the specific selection of an organic peroxide having a t-butyl peroxy group from other organic peroxides to produce a processing aid which provides excellent peeling properties of the obtained thermoplastic resin composition is not taught or suggested by the cited patent.

Specifically, when a benzoyl peroxide, an organic peroxide without a t-butyl

peroxy group, is used in forming the processing aid, the peeling property of the obtained thermoplastic resin composition is 3 to 5 as is demonstrated in Comparative Examples 14 and 36 of the present specification. However, when an organic peroxide having a t-butyl peroxy group is used, the peeling property is 9 to 10 as is demonstrated in Examples 8, 27 to 29, 50 and 67 to 69 of the subject specification.

In addition, the Tugukuni et al patent teaches that (meth)acrylate which has an oxygen atom in addition to an ester bond is only an optional component used for adjusting the glass transition temperature of the polymer as is set forth in column 3, line 55 to column 4, line 15. Therefore, the Tugukuni et al patent does not teach or suggest the use of the specific combination of an organic peroxide having a t-butyl peroxy group with a (meth)acrylate which has an oxygen atom in addition to an ester bond nor does the patent recognize the unexpected and surprising results achieved thereby.

Furthermore, the teaching contained in the Tugukuni et al patent of a polymer comprising "100 parts of water, 30 parts of styrene, 20 parts of MMA, ...10 parts of glycidyl methacrylate and 1 part of dodecyl mercaptan" as set forth in Example 8 was relied upon. However, this polymer was obtained by suspension polymerization, not by emulsion polymerization. While some of the other examples of the Tugukuni et al patent do utilize emulsion polymerization, the polymers produced do not fulfil the

conditions that (1) the (meth)acrylate has an oxygen atom in addition to an ester bond is used, and (2) the organic peroxide having a tertiary butyl group is used.

In summary, it is submitted that the processing aid composition as defined by claim 1 is not taught or suggested by the Tugukuni et al patent. Among other things, the processing aid obtained by the emulsion polymerization provides a thermoplastic resin with excellent peeling property from a metal surface at a high temperature as is detailed on page 4, lines 21 to 26 of the present specification.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 102(b) and allowance of claims 1, 3 and 6 over the cited Tugukuni et al patent are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to

Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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1	CTNF	6
2	892	1

Total number of pages: 7

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